

Hemispheric interactions during audiovisual speech perception: Dichotic listening and visual hemifield effects

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Auditory speech perception has been shown to be influenced by the simultaneous visual presentation of the speaker's face uttering different syllables. The present study, combining acoustic homonymic (binaurally congruent) and dichotic (incongruent) syllables (/pa/ and /ta/) with visual hemifield presentation of a speaking face, investigated the interactions between place of articulation of the visual stimuli, visual hemifield effects, auditory ear effects, and participants' gender. Most of the items were perceived as /ta/, /pa/, or /pta/. In case of homonymic auditory /ta/ the labial video tended to influence particularly females, resulting in combination responses (/pta/). Single-consonant responses in the dichotic conditions showed a strong and highly significant right-ear advantage concomitant with a preference for the right hemifield, irrespective of gender. By contrast, /pta/ responses in the dichotic conditions were more frequent in females than males and showed an interaction of video side with place of articulation. The largest number of double articulations was perceived if right-ear /ta/ was combined with /pa/ in the left hemifield and left ear. These results can be taken as an indication that the mechanisms resulting in fused single-consonant percepts are different from the ones leading to more complex responses requiring cross-modal combinations of phonological information.